REMARKS

A. Status of Claims

Claims 1-34 are pending in the application. Claims 1-22 have been allowed. Claims 23-34 have been canceled. Claims 1 and 13 are currently amended. Support for amended claims 1 and 13 may be found, for example, in the specification at page 8, lines 7-9; page 9, line 20; and page 10, line 1.

Claims 35-62 have been added. Support for claims requiring that the segment be in the form of a single crystal silicon wafer (i.e., claims 35, 38, 43, 45, 49, 52, 57, and 59) may be found, for example, in the specification at page 25, line 20. Support for claims requiring that the segment have an asymmetric recombination center profile relative to the central plane of the segment (i.e., claims 36, 37, 39, 40, 44, 46, 47, 50, 51, 53, 54, 58, 60, and 61) may be found, for example, in the specification at page 24, line 28. Support for claims requiring that the substitutional metal is platinum (i.e., claims 41 and 55) may be found, for example, in the specification at page 11, lines 10-22 and page 16, lines 5-9. Support for claims requiring that the segment have a carbon concentration which is less than about 5×10^{15} atoms/cm^3 (i.e., claims 42, 48, 56, and 62) may be found, for example, in the specification at page 12, lines 8-9.

B. Patentability of Amended Claims 1 and 13

As amended, claims 1 and 13 require that the minority carrier recombination centers comprise substitutional metal.

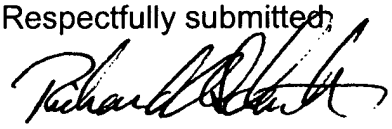
In U.S. Patent No. 5,075,751 (Reference 43 on the IDS filed December 2, 1999), Tomii et al. describe a semiconductor device having an anode zone 12, a cathode zone 13, a high resistance zone 15, and a lattice defect zone 16. The lattice defect zone 16 is positioned such that the peak value Q of the lattice defect distribution is located inside the distribution curve AN of the anode zone 12 and closer to an impurity distribution curve CA of the cathode zone 13. The lattice defect zone 16 acts to shorten the carrier lifetime causing holes injected from the anode zone 12 to disappear quickly. Lattice defect zone 16 is formed by irradiating the device with protons which cause

crystal damage. The damaged crystal, alone, serves as the minority carrier recombination center. In contrast, and among other things, claims 1 and 13 specifically require that the minority carrier recombination centers comprise substitutional metal atoms.

CONCLUSION

In view of the foregoing, applicants respectfully submit that claims 1-22 as amended and new claims 35-62 satisfy the requirements for patentability. Allowance of these claims is therefore respectfully requested. Enclosed is a check in the amount of $288.00, representing the difference between the fee for twenty-eight (28) new claims and the twelve (12) canceled claims. The Commissioner is hereby authorized to charge any underpayment and credit any overpayment of government fees to Deposit Account No. 19-1345.

Respectfully submitted,



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